

### **REMARKS**

The Applicants thank the Examiner for the thorough examination given the application. No new matter is added to the application by this Amendment.

#### **Entry of Amendment**

Entry of this Amendment under 37 C.F.R. §1.116 is respectfully requested as it raises no new issues and places the application in condition for allowance. Alternately, entry is requested as placing the application in better form for appeal.

#### **Status of the Claims**

Claims 6-9, 14-17, 19, 20, 22, 23, 25 and 26 are pending in the application. Independent claims 6, 8, 14 and 16 have been amended such that in the formula  $A_{1-x}B_xC_{1-y}D_yO_3$ , D is tantalum and is present in some amount up to and including 0.2. Since this embodiment of the present invention has already been before the Examiner, no new issues are being raised.

#### **Rejection Under 35 U.S.C. 103(a) Over JP '913 in View of Soma**

As set forth at pages 3-7 of the Office Action, claims 6-9, 14-17, 19, 20, 22, 23, 25 and 26 are rejected under 35 U.S.C. 103(a) as being obvious over JP '913 (JP 8-50913) in view of Soma (U.S. Patent 5,411,767). Applicants traverse and hereby incorporate all previously submitted arguments.

Distinctions of the present invention over JP '913 and Soma have been placed before the examiner during both the prosecution of the present application and appeal.

For brevity, these distinctions will not be repeated here. However, set forth below are grounds that clarify the patentability of the present invention over JP '913 and Soma.

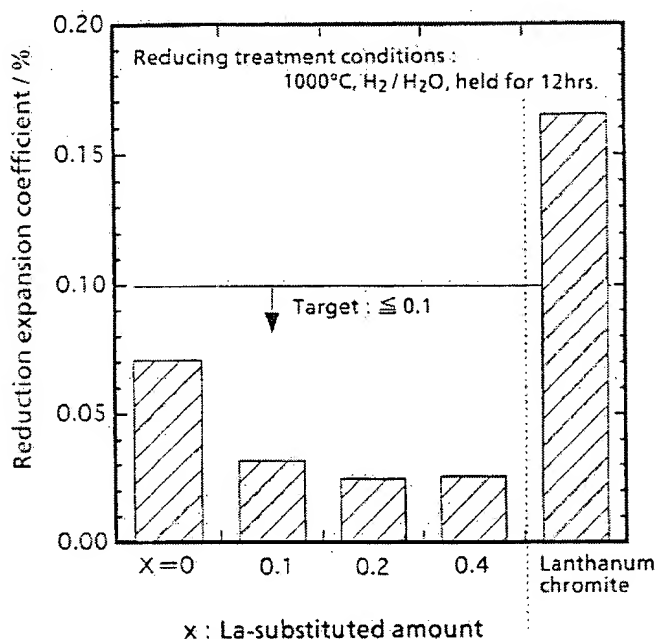
At page 3, lines 15-16 of the Office Action, the Examiner unequivocally admits to some of the failures of JP '913: "The Japanese reference does not expressly teach the material(s) which may compromise the interconnector (claims 6, 8, 14 and 16), the temperature at which the sintering is performed (claims 22 and 23), or the relative density of the interconnectors (claims 25 and 26)." The Examiner then turns to Soma to address these deficiencies.

However, Soma fails to disclose or suggest all the missing elements (in JP '913) of the present invention described in the independent claims, namely, the compound of the general formula  $A_{1-x}B_xC_{1-y}D_yO_3$  ( $0 < x \leq 0.2$ ,  $0 < y \leq 0.2$ ) where D is tantalum.

Also, at pages 7 and 8 of the Amendment filed November 8, 2005, it was noted that a material having a charge balance of "+0.2" can maintain a crystal structure, but that a material having a charge balance of "-3" or "+1" cannot maintain a crystal structure. In reply to these observations, the Examiner states at page 7, line 6 of the Office Action that "Applicant's arguments are not adequately supported by evidence." To better understand the present invention, the Examiner is respectfully requested to consider the following explanation of the technology

Based on nonstoichiometry, if the charge balance is "+0.2", the oxygen content needs to be " $O_{3.1}$ ", in order to obtain a charge balance of "0". In this case, the change rate of the oxygen content is  $(3.1 - 3)/3 = 0.033$ , which is a very low value of the order of

about 3%. A Perovskite type compound corresponding to such an oxygen content change rate of as small as about 3%, based on nonstoichiometry, is a compound which has been actually obtained (see, for example, Fig. 34 of the present application, which is reproduced below).



On the other hand, if the charge balance is "+1", the oxygen content needs to be "O<sub>3.5</sub>" in order to obtain a charge balance of "0". In this case, the change rate of the oxygen content is  $(3.5 - 3) / 3 = 0.167$ , showing a high value of about 17%. If the charge balance is "-3", the oxygen content needs to be "O<sub>1.5</sub>" in order to obtain a charge balance of "0". In this case, the change rate of the oxygen content is  $(3 - 1.5) / 3 = 0.5$ , meaning an immense value of 50%. Perovskite type compounds corresponding to such oxygen content change rates of as great as 10-odd % to several tens of % based on

nonstoichiometry have not been actually obtained. Also, there is no document suggesting the presence of such compounds.

Accordingly, the observations in the previous Amendment of November 9, 2005 are adequately supported by nonstoichiometry and the descriptions in the specification of the present application.

At page 6, lines 13-19 of the Office Action, the Examiner takes the position that the compounds given by the Examiner above are merely exemplary. The Examiner then cites as a further example, that Soma suggests a compound of the formula  $\text{Mg}_{0.5}\text{LaTi}_{0.5}\text{O}_3$  having a charge balance of 0. The Examiner then concludes that the material composition of this compound can be further manipulated, resulting in the composition claimed by the present invention.

However, the Examiner's position is fully rebutted for at least the following three reasons:

i) The compound exemplified by the Examiner as being suggested by Soma essentially does not exist.

ii) The compound having a charge balance of "0", which has been taken as an example by the Examiner as being suggested by Soma, is clearly different from the compound described in the claims of the present application.

iii) Furthermore, the Examiner states that "the material composition can be further manipulated resulting in the claimed composition". (Office Action at page 6, lines 18-19). However, the Examiner fails to concretely show the compound described in the claims of the present application, which corresponds to the Examiner's alleged

manipulation product, by referring to the disclosure of Soma. For these reasons, the invention described in the instant claims are clearly non-obvious over the Soma when combined with JP '913.

As a result, one of ordinary skill in the art would not be motivated by the combination of JP '913 and Soma to produce the present invention as embodied in independent claim 6, 8, 14 and 16. A *prima facie* case of obviousness has thus not been made. Claims depending upon independent claims 6, 8, 14 and 16 are patentable for at least the above reasons.

Further, the invention shows unexpected results that would fully rebut any obviousness that could be alleged. These unexpected results are of record in the application.

This rejection is overcome and withdrawal thereof is respectfully requested.

### **Conclusion**

The Examiner's rejection has been overcome, obviated or rendered moot. No issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner, Ph.D. (Reg. No. 42,593) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.


Application No. 09/118,833  
Amendment dated March 29, 2006  
After Final Office Action of December 29, 2005

Docket No.: 0965-0232P

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, extension of time fees.

Dated: March 29, 2006

Respectfully submitted,

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